

STUDIES IN MEXICAN ARCHIBACCHARIS (COMPOSITAE)

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ABSTRACT

The taxa of Archibaccharis hieraciifolia, as treated by Jackson (1975) are recognized as A. hieracioides (S. F. Blake) S. F. Blake and A. auriculata (Hemsley) Nesom. Each of Jackson's four varieties of A. hirtella (DC.) Heering is treated as a separate species: A. hirtella, A. intermedia (S. F. Blake) B. Turner, A. albescens (J. D. Jackson) Nesom, and A. taeniotricha (S. F. Blake) Nesom. Archibaccharis asperifolia (Benth.) S. F. Blake is viewed as a variable species that includes A. sescenticeps (S. F. Blake) S. F. Blake. A new species of sect. Hirtella from Veracruz is described: A. veracruzana Nesom.

Archibaccharis was recently revised by Jackson (1975), but even since his incisive study many new collections have been made, allowing a better understanding of species limits and variability. One new species has been described from Costa Rica (Sundberg 1984), and Turner (1984) has presented observations resulting from his study of the genus in Veracruz. During my study of the Mexican taxa of Archibaccharis, another new species has come to light, and several new combinations and changes in rank are required.

I. The Archibaccharis hieracioides group

The nomenclature of Archibaccharis hieraciifolia Heering sensu lato (and sensu Jackson) has been discussed by Blake (1927), McVaugh (1972, 1984) and Jackson (1975). Jackson treated the group as represented by three varieties, but McVaugh (1984) could not distinguish between vars. glandulosa and hieraciifolia of Jackson, nor can I. Thus, I recognize only two taxa, though the nomenclature is arranged differently, since each is treated as a separate species. McVaugh also was the first to recognize that an earlier name at the species rank is available for Archibaccharis hieraciifolia Heering (Pluchea auriculata Hemsley).

Archibaccharis auriculata and A. hieracioides appear to be closely related and are easy to recognize because of the glands on both their stems and leaves. Although the two have sympatric distributions over a large range, each maintains its unique features and behaves as a distinct species. Some plants may show intermediacy, perhaps due to hybridization, but certainly not to the degree expected if they were conspecific. Archibaccharis campii S. F. Blake is retained here until more material can be examined, but it is very similar to A. hieracioides and perhaps conspecific with it.

1. Upper leaf surface with appressed, eglandular hairs; Mt. Zempoaltepetl, Oaxaca A. campii
1. Upper leaf surface with erect, gland-tipped hairs; Oaxaca and northward. (2)
2. Stems hairs 0.1-0.4 mm long; leaves densely glandular, the bases strongly clasping; pedicels 1-5 (-15) mm long; phyllaries long-linear-acuminate, 6-8 mm long A. auriculata
2. Stem hairs mostly 0.8-1.5 mm long; leaves sparsely glandular, the uppermost with clasping bases, the lower not clasping to barely subclasping; pedicels 8-26 mm long; phyllaries lanceolate, 5-5.5 mm long on the staminate heads, 6-6.5 mm long on the pistillate heads A. hieracioides

Archibaccharis auriculata (Hemsley) Nesom, comb. nov.

Pluchea auriculata Hemsley, Diagn. Pl. Nov. 32. 1879. TYPE: MEXICO. Guanajuato, Hartweg 112 (Holotype: K, as noted by McVaugh, 1984).

Baccharis glandulosa Greenm., Proc. Amer. Acad. Arts 40:36. 1904.

TYPE: MEXICO. Distrito Federal, Serranía de Ajusco, 7 Dec 1903, C. G. Pringle 8782 (Holotype: GH; isotypes: BM, C, F, K, LL!, MICH, MIN, MO!, NY, P, POM, UC, US, VT!). Hemibaccharis glandulosa (Greenm.) S. F. Blake, Contr. U. S. Natl. Herb. 20:546. 1924. Archibaccharis glandulosa (Greenm.) S. F. Blake, Contr. U. S. Natl. Herb. 23:1508. 1926. A. hieraciifolia var. glandulosa (Greenm.) J. D. Jackson, Phytologia 28:296. 1974.

A. hieraciifolia Heering, Jahr. Hamb. Wissensch. Anst. 21, Beiheft. 3:40. 1904. TYPE: MEXICO. Oaxaca, Sierra de San Felipe, 13 Dec 1895, C. G. Pringle 6257 (Holotype: HBG; isotypes: BM, F, GH, K, MIN, MO!, MSC, NY, P, UC, US, VT!). Archibaccharis hieraciifolia var. hieraciifolia J. D. Jackson, Phytologia 28:296. 1974.

Baccharis oaxacana Greenm., Proc. Amer. Acad. Arts 40:37. 1904.

TYPE: Pringle 6257, data as for A. hieraciifolia Heering (Holotype: GH). Hemibaccharis oaxacana (Greenm.) S. F. Blake, Contr. U. S. Natl. Herb. 20:546. 1924. Archibaccharis oaxacana (Greenm.) S. F. Blake, Contr. U. S. Natl. Herb. 23:1508. 1926.

Jalisco, Michoacán, México, Hidalgo, Veracruz, Puebla, Guerrero, and Oaxaca; shaded or open exposures, usually in pine-oak or pine woods; 2000-3300 m; flowering Nov-Mar.

Plants of Archibaccharis auriculata from Oaxaca, including Jackson 1030 (noted below) and the type of Baccharis oaxacana, have relatively less glandular leaves than those from further north.

ARCHIBACCHARIS HIERACIOIDES (S. F. Blake) S. F. Blake

Baccharis hieraciifolia Hemsley, Biol. Centr. Amer. Bot. 2:129. 1881; not Lam. 1783; not Archibaccharis hieraciifolia Heering. TYPE: MEXICO. México, Desierto Viejo, Valley of Mexico, 3 Nov 1865, Bourgeau 1230 (Lectotype (Jackson, 1974): K; isolectotypes: C, C photo-TEX!, GH, P, US). Hemibaccharis hieracioides S. F. Blake, nom. nov., Contr. U. S. Natl. Herb. 20:547. 1924. A. hieracioides (S. F. Blake) S. F. Blake, J. Wash. Acad. Sci. 17:60. 1927. A. hieraciifolia Heering var. hieracioides (S. F. Blake) J. D. Jackson, Phytologia 28:296. 1974. As pointed out by McVaugh (1972), Blake could have legitimately used Hemsley's epithet "hieraciifolia" in a combination to Hemibaccharis, but his later transfer of this species to Archibaccharis, using the same epithet, was justified since the type of Heering's name is a different species.

Michoacán, Jalisco, Guerrero, Oaxaca, San Luis Potosí, Hidalgo, México, Morelos, Tlaxcala; oak-pine, pine-fir, or fir forests; 2750-3200 m; flowering Nov-Feb (-Mar).

Jackson (1975) cited both his collections 1029 and 1030 (made "directly across the road" from each other in Oaxaca) as A. hieraciifolia (= A. auriculata in the present treatment), but only 1030 is typical A. auriculata. Collection 1029 has long pedicels, long phyllaries, and acute leaf apices similar to A. hieracioides, but is different in its leaf bases that are merely "petioliform" and slightly widened at the base though not auriculate, and in its upper leaf surfaces with gland-tipped hairs only sparsely interspersed among the more numerous, short, appressed, non-glandular hairs. In this last feature, the plants are similar to A. campii.

II. The Archibaccharis hirtella group

Jackson (1975) noted that the four varieties, as he treated them, of Archibaccharis hirtella (DC.) Heering "may represent distinct biological entities" and predicted that "Future studies may more fully justify the elevation of each of these varieties to species status." Turner (1984) has already raised var. intermedia S. F. Blake to specific rank, and I extend this by recognizing the other three varieties as distinct species. All are more or less scandent in habit with fractiflex stems, but each has a very distinctive morphology and a separate geographic range, allopatric with the others; I have not seen intermediates between any of them. In fact, I believe they probably are more closely related to other species than they are among themselves.

Archibaccharis albescens (J. D. Jackson) Nesom, comb. et stat. nov. Archibaccharis hirtella var. albescens J. D. Jackson, Phytologia 28:298. 1974. TYPE: MEXICO, Oaxaca, Sierra de Clavellinas, 18 Oct 1894, C. G. Pringle 4988 (Holotype: MIN; isotypes: BM, ENCB, G, GH, K, MICH, MO!, MSC, NY, P, POM, UC, VT!).

Endemic to central Oaxaca; pine-oak and oak woods, often with alder; 1900-2900 m; flowering (Aug-) Oct-Jan.

Stems moderately pubescent with spreading, thick, eglandular hairs 0.5-1.2 mm long. Lower leaf surfaces with minute but prominent short-stipitate resin glands among the longer, eglandular hairs, otherwise sparsely hairy, the upper surface eglandular, sparsely hairy only along the veins. Pistillate heads 2-2.6 mm long.

Archibaccharis albenscens may be related to *A. schiedeana* (Benth.) J. D. Jackson, a scandent species with minute resin glands on the upper leaf surfaces and sometimes on the lower.

Archibaccharis taeniotricha (S. F. Blake) Nesom, comb. et stat. nov.

Archibaccharis hirtella var. *taeniotricha* S. F. Blake, J. Wash.

Acad. Sci. 24:434. 1934. TYPE: GUATEMALA. Dept. Chimaltenango, Santa Elena, 24 Feb 1933, A. F. Skutch 276 (Holotype: US; isotypes: A, DS, MICH).

Chiapas to El Salvador; slopes and ravines in cloud forests, usually with oak, pine, or cypress, 1200-3800 m; flowering Dec-Jan.

Upper stems and veins of lower leaf surfaces densely covered with stiffly spreading, often deflexed, vitreous, reddish-brown hairs 0.5-1.5 mm long, the lamina often similarly hairy but eglandular. Pistillate heads 2-2.5 mm long. Pistillate style branches 0.5-0.6 mm long.

Archibaccharis taeniotricha may be more closely related to *A. flexilis* (S. F. Blake) S. F. Blake, another similarly hairy, scandent species restricted to Central America from Chiapas to Costa Rica, than to the taxa originally included as varieties of *A. hirtella* by Jackson. *Archibaccharis flexilis* has curving-twining stems, pistillate phyllaries 3.5-4.5 mm long, and pistillate style branches 1-1.2 mm long.

ARCHIBACCHARIS HIRTELLA (DC.) Heering, Jahrb. Hamb. Wissensch. Anst 21, Beiheft 3:41. 1904. *Baccharis hirtella* DC., Prodr. 5:418. 1836. TYPE: MEXICO. Between Acapulco and Mexico city, 1791(?), Haenke s.n. (Holotype: G-DC, photo-TEX!; isotypes: fragments-F(?), P, P photo-MIN).

Guerrero, Morelos, México, and Oaxaca; moist or rocky slopes in oak, oak-fir, pine-oak, or pine woods, 600-3200 m; flowering Oct-Feb.

Stems and phyllaries densely glandular with minute, stipitate resin glands 0.1 mm or less high, sometimes mixed with a few biseriate hairs 0.1-0.2 mm high. Pistillate heads 2-2.5 mm long, staminate heads 1.5 mm long. Disc flowers usually with dark purple lobes and throats, the tube whitish and densely hairy, style branches 0.1-0.2 mm long.

ARCHIBACCHARIS INTERMEDIA (S. F. Blake) B. Turner, Phytologia 56:377. 1984. Archibaccharis hirtella var. intermedia S. F. Blake, J. Wash. Acad. Sci. 24:434. 1934. TYPE: MEXICO. Veracruz, near Orizaba, 25 Jan 1895, C. G. Pringle 6108 (Holotype: US; isotypes: BM, C, F, GH, K, MICH, MIN, MO!, MSC, NY, P, POM, UC, VT!).

Veracruz, Hidalgo, and Puebla; cloud forests, usually with pine, oak, or alder, 1000-2400 m; flowering Oct-Feb (-Mar).

Stems straight to slightly fractiflex but probably scandent in habit. Completely eglandular. Leaves small, abruptly petiolate, the blades mostly ovate, 25-45 (-60) mm long, 9-30 mm wide, coarsely serrate-mucronulate with 1-5 pairs of teeth, the apices long, entire, acuminate or acute. Heads small in leafy, open capitulescences, the ultimate peduncles mostly 5-12 mm long.

III. Archibaccharis asperifolia (including A. sescenticeps)

I agree with McVaugh (1984) that A. sescenticeps can only be arbitrarily separated from A. asperifolia. In Michoacan, Guerrero, Mexico, and Hidalgo, a tendency exists for the leaves to be glabrous above and more ovate and the leaf and stem pubescence more dense, traits said to distinguish A. sescenticeps, but these morphologies are intergrading in that region and not indicative of the presence of two taxa.

ARCHIBACCHARIS ASPERIFOLIA (Benth.) S. F. Blake

Baccharis asperifolia Benth., Pl. Hartweg. 86. 1841. TYPE: GUATEMALA. Mixco, 1840, Hartweg 589 (Holotype: K; isotypes: G photo-TEX!, fragments, GH, K, NY, P). Conyza asperifolia (Benth.) Benth. & Hook. ex Hemsley, Biol. Centr.-Amer. Bot. 2:126. 1881. Hemibaccharis asperifolia (Benth.) S. F. Blake, Contr. U. S. Natl. Herb. 20:552. 1924. Archibaccharis asperifolia (Benth.) S. F. Blake, Contr. U. S. Natl. Herb. 23:1509. 1926.

Baccharis scabridula Brandege, Univ. California Publ. Bot. 6:77. 1914. TYPE: MEXICO. Chiapas, Cerro del Boquerón, Aug 1913, Purpus 6665 (Holotype: UC; isotypes: BM, F, GH, MO!, NY, US)

Hemibaccharis sescenticeps S. F. Blake, Contr. U. S. Natl. Herb. 20:552. 1924. TYPE: MEXICO. Mexico, Mt. Ixtaccíhuatl, Nov 1905, Purpus 1501 (Holotype: US; isotypes: BM, C, DS, F, GH, MO!, POM, UC). Archibaccharis sescenticeps (S. F. Blake) S. F. Blake, Contr. U. S. Natl. Herb. 23:1509. 1926.

Jalisco, Michoacán, México, Hidalgo, San Luis Potosí, Veracruz, Puebla, Guerrero, Oaxaca, and Chiapas, to Nicaragua: oak, pine-oak, pine-fir, deciduous or evergreen cloud forests, often in open areas; 1700-3000 [-3900] m; flowering (Sep-) Oct-Feb.

Erect subshrubs. Stems terete to angled, usually purplish, glabrous or very sparsely hairy below the capitulescence. Leaves mostly lanceolate-ovate to elliptic with acute to short-acuminate apices, the margins serrate, scabrous above or rarely glabrate, very sparsely hairy to glabrous beneath, midvein and primary lateral raised beneath, the smaller, reticulate veins sunken and conspicuously darker than the lamina. Pistillate heads 3.5-4 mm long; filiform flowers eligulate or the ligules barely if at all reaching the bifurcation of the style branches. Chromosome number, $n=9$ pairs.

Archibaccharis asperifolia is similar to *A. serratifolia* (H.B.K.) S. F. Blake, another widespread and relatively variable species, which occurs from Sinaloa and Chihuahua to Veracruz and south to Guatemala. They can be distinguished by the contrasts in the following couplet.

1. Stems glabrous or glabrate below the capitulescence; leaves glabrous to very sparsely short-hairy beneath, midvein and primary laterals raised beneath with the smaller, reticulate veins sunken and conspicuously darker than the lamina; pistillate flowers eligulate or the ligules barely if at all reaching the bifurcation of the style branches *A. asperifolia*
1. Stems hairy to well below the capitulescence; leaves moderately to densely pilosulous beneath, sometimes merely hispid with shorter, stiffer hairs, midvein, primary lateral, and main reticulating veins raised, whitish; pistillate flowers with ligules usually as long as the style branches *A. serratifolia*

IV. A new species of sect. *Hirtella*

Archibaccharis veracruzana Nesom, sp. nov.

A. salmeoidi (S. F. Blake) S. F. Blake similis sed caulibus pilis biseriatis glandiferis 0.1-0.6 (-1.0) mm longis et capitulorum pistillatorum phyllariis ad maturitatem non elongatis non lanceolatis differt.

A "climbing shrub" (from the label). Stems purplish-brown, slightly fractiflex, angled at the nodes 35-50 mm apart, densely glandular with biseriate hairs with colored cross-walls. The hairs 0.1-0.6 (-1) mm long, tipped with a small but easily visible head. Leaves thick, slightly shiny, glabrous except for a few small hairs along the margins and larger veins, lanceolate-ovate with short-acuminate apices and rounded to obtuse bases, the blades 45-95 mm long, 15-45 mm wide, on distinct petioles 5-8 mm long, margins serrulate-mucronulate with 5-9 pairs of teeth. Capitulescences axillary and terminal, many-headed but somewhat diffuse, corymbose panicles, ebracteate or with a small bract immediately subtending some of the heads. Staminate heads not observed. Pistillate heads 3 mm long, with 9-10 filiform pistillate flowers and 1 disc flower;

phyllaries prominently purplish, ovate to oblong-ovate, in 3-5 strongly graduate series, the inner 3 mm long, glabrous except for the fringed-ciliate margins. Pistillate flowers with tube 2 mm long, ligules 0.1-0.5 mm long, sometimes dissected into linear segments; style branches 0.8 mm long, exserted well above the corolla. Disc flowers with tube whitish, densely hairy, 1.6-1.8 mm long, throat 0.4 mm long, and lobes 1 mm long, the throat and lobes dark purple; style branches ovate, 0.6-0.8 mm long. Mature achenes not observed; pappus bristles 2-2.5 mm long.

TYPE: MEXICO. Veracruz, Mpio. Atzalan, La Florida, oak woods, side of arroyo, 1700 m, 22 Jan 1970, F. Ventura A. 372 (Holotype: LL!; isotype: WIS!)

The fractiflex (zig-zag at the nodes) stems, scandent habit, and capitulescences that are both terminal and axillary of this plant place it with the species of Archibaccharis sect. Hirtella J. D. Jackson. Among these, it is most similar to A. salmeoides (S. F. Blake) S. F. Blake, with which it shares petiolate, thick, shiny leaves and ovate phyllaries. The latter species, however, has stems with uniseriate, eglandular hairs and phyllaries of the pistillate heads that become lanceolate and 5-5.5 mm long at maturity. Archibaccharis veracruzana has biseriate-glandular stems and shorter, ovate to oblong-ovate phyllaries. The only other species of sect. Hirtella that has glandular stems is A. hirtella, but the glands are minute, stipitate resin glands 0.1 mm or less high, its leaves lack the thick texture and shiny surfaces, and its heads are formed of glandular, lanceolate phyllaries less than 2.5 mm long.

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